OIPE IAP20 DEC 22 2006 PATENT & TRADEMARK OFFICE

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

CLAIMS

What I claim as my invention is:

1 – 20. (canceled)

21. (currently amended) A drawing process for producing an optical fiber comprising the steps of:

measuring either the outer diameter or shape of a preform;

feeding said preform at a feeding speed into a furnace to heat and melt said preform;

heating and melting said preform;

while heating and melting, drawing said optical fiber from said preform at a drawing speed to form said optical fiber;

measuring the outer diameter of said optical fiber at a position below the furnace;

providing a control system with the measured outer diameter or shape of said preform , the measured outer diameter of said optical fiber, a predetermined preform value and a predetermined fiber value for controlling said drawing process;

calculating a preform deviation of the measured preform diameter or shape from the predetermined preform value, and a fiber diameter deviation of the measured fiber diameter from the predetermined fiber value;

generating control signals based on the combination of the preform deviation, the fiber diameter deviation, the measured preform diameter or shape, and the predetermined preform value for said optical fiber drawing process control; and

adjusting the feeding speed of said preform and the drawing speed of said fiber according to said control signals;

~~wherein the control system generates control signals based on the preform deviation and the fiber diameter deviation for controlling~~

~~the feeding speed of said preform and the drawing speed of said optical fiber;~~

whereby said optical fiber drawing process is robustly controlled against deviations of the preform outer diameter or shape at different locations and against deviations of various preforms.

22. (canceled)

23. (canceled)

24. (currently amended) The process as claimed in claim 21, wherein

the control signals are further based on ~~the preform measurement,~~ the fiber measurement ~~, the predetermined preform value~~ and the predetermined fiber value. ~~for said optical fiber drawing process control to control the feeding speed of said preform and the drawing speed of said optical fiber.~~

25. (previously presented) The process as claimed in claim 24,

wherein the position of measuring the optical fiber is at a position at which shrinkage

of the outer diameter of said optical fiber is not larger than a predetermined allowable diameter deviation value of said optical fiber.

26. (currently amended) A drawing process for producing an optical fiber comprising the steps of:

heating a preform at a preform feeding speed into a furnace;

heating and melting the ~~a~~ preform in the ~~a~~ furnace;

while heating and melting, drawing said optical fiber from said preform at a fiber drawing speed;

measuring the outer diameters of said optical fiber, ~~when that~~ which is bare, at two or more different measurement locations by respective measurement devices before coating,

wherein a first location is close to the furnace to provide a first measured bare fiber diameter, and

a second location is below the first location, at this second location shrinkage of the outer diameter of said optical fiber, while stretched under the drawing, is not larger than a predetermined allowable bare fiber diameter deviation value of said optical fiber, or the second location is immediately before coating to provide a second measured bare fiber diameter;

coating said optical fiber;

providing a control system with the measurement data from said measurement devices respectively at the different locations; ~~,~~

calculating a first bare fiber diameter deviation of the first measured bare fiber diameter from a first preselected bare fiber diameter value;

calculating a second bare fiber diameter deviation of the second measured bare fiber diameter from a second preselected bare fiber diameter value which is less than the first preselected bare fiber diameter value;

generating control signals based on the combination of the first bare fiber diameter deviation and the second bare fiber diameter deviation for said optical fiber drawing process control; and

adjusting the feeding speed of said preform and the drawing speed of said fiber according to said control signals.

~~wherein said control system~~

~~has a first preselected value for the measurement data from the first measurement location, and a second different preselected value that is less than the first preselected value for the measurement data from the second measurement location,~~

~~calculates the deviation of the measurement of the first measurement location from the first preselected value, and the deviation of the measurement of the second measurement location from the second preselected value, and~~

~~controls a fiber drawing speed and a preform feeding speed for the drawing process based on the calculated deviations ;~~

~~whereby to robustly control said optical fiber drawing process by the double measurements~~

~~of the bare fiber diameters from said measurement devices.~~

27 – 36. (canceled)

37. (previously presented) A control method for an optical fiber drawing process control including the steps of:

measuring a preform outer diameter by a measurement device before a heating and melting stage;

feeding the measured preform at a feeding speed into a furnace in the heating and melting stage;

while heating and melting said preform, drawing said optical fiber from said preform at a drawing speed to change the geometrical size of said preform to form said optical fiber which is a bare optical fiber before coating;

measuring said bare optical fiber by a first outer diameter measurement device located after said furnace to provide a first bare fiber diameter measurement;

measuring said bare optical fiber by a second outer diameter measurement device located after said first outer diameter measurement device and above a coating device to provide a second bare fiber diameter measurement;

coating said bare optical fiber in said coating device;

providing the preform outer diameter measurement and the first and second bare fiber diameter measurements into a control system which controls said feeding speed of said

preform into the furnace in the heating and melting stage and said drawing speed of said fiber;

calculating a preform diameter deviation of the measured preform diameter from a preselected preform diameter value, and a first bare fiber diameter deviation of the first measured bare fiber diameter from a first preselected bare fiber diameter value;

calculating a second bare fiber diameter deviation of the second measured bare fiber diameter from a second preselected bare fiber diameter value which is less than the first preselected bare fiber diameter value;

generating control signals based on the preform diameter deviation, the first bare fiber diameter deviation and the second bare fiber diameter deviation for said optical fiber drawing process control; and

adjusting the feeding speed of said preform and the drawing speed of said fiber according to said control signals.

38. (previously presented) The control method in claim 37, wherein

said control signals are further based on the measured preform diameter and the preselected preform diameter.

39. (previously presented) The control method in claim 38, wherein

the preform measurement device is located immediately above the furnace;

the first outer diameter measurement device of said bare fiber is located immediately after said furnace;

the second outer diameter measurement device of said bare fiber is located immediately above the coating device;

said control signals are further based on the first measured bare fiber diameter, the first preselected bare fiber diameter, the second measured bare fiber diameter and the second preselected bare fiber diameter.